

Appl. No. 09/844,175

REMARKS

Claims 31-42 and 54-61 are pending in the present application. Claims 31-42 and 54-61 stand rejected for obviousness-type double patenting over U.S. Patent No. 5,326,428. Claims 31-42 and 54-61 stand rejected for anticipation by Blonder et al. Claims 31-42 and 54-61 stand rejected for anticipation by Agahdel et al.

Applicants respectfully traverse the rejections and urge allowance of the present application.

Claim 31 recites a removable electrical interconnect apparatus comprising, in part, a substrate and an engagement probe having an outer surface comprising an apex in the form of at least one knife-edge line sized and positioned to extend elevationally above a surface of the substrate to engage a single conductive pad. Claim 31 recites patentable subject matter over the prior art of record.

Referring initially to the constructions of Blonder, as clearly shown in Figs. 1-3 thereof, no structures may be fairly considered to disclose or suggest the claimed at least one knife-edge line which extends elevationally above a surface of the substrate as specified in claim 31. As clearly illustrated in Figs. 2 and 3 of Blonder, the constructions adjacent reference 14 formed in reference 10 do not extend elevationally above the surface of a substrate. Positively recited limitations of claim 31 are not shown or suggested by Blonder and claim 31 is allowable over Blonder for at least this reason.

Referring to the rejection of claim 31 over Agahdel, paragraph 7 on page 5 of the Office Action cites teachings about item 44 on top surface of 40 in Fig. 4 of Agahdel as allegedly corresponding to the claimed apex in the form of at least one knife-edge line.

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Applicants disagree and such interpretation of the Agahdel reference in the Office Action is entirely contrary to the explicit teachings of Agahdel.

For example, in column 3, lines 31-32, it is stated that Fig. 5 is a cross-sectional view of a particle protruding from the contact of Fig. 4. Fig. 4 identifies hard conductive particles 44 which protrude from a top surface of contact pad 40 as set forth in column 6, lines 22-24. Referring to the teachings in column 6, lines 30-32, it is stated that *Fig. 5 is an enlarged cross-sectional view of one of the particles 44 of Fig. 4*. It is stated that the particles are both mechanically hard and electrically conductive and are embedded in a layer of hard metal 46. Referring to the express teachings in column 6 and the construction illustrated in Fig. 5, it is clear that reference 44 identified in the Office Action fails to disclose or suggest an apex in the form of at least one knife-edge line. Particle 44 comprises a square structure embedded in surrounding hard metal providing an elongated upper surface which in no fair interpretation discloses or suggests an apex in the form of at least one knife-edge line as recited in claim 31. Agahdel fails to disclose or suggest positively recited limitations of claim 31 and claim 31 is allowable for at least this reason.

The claims which depend from independent claim 31 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Paragraph 7 of the Office Action states that the limitations of claims 32-42 are considered to be inherent in the apparatus of Agahdel or are within the normal range of operating the apparatus of Agahdel. Applicants disagree.

The Examiner's reliance upon inherency is misplaced. The Examiner is reminded

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that in relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied prior art. *Ex parte levy, 17 USPQ 2d1461, 1464 (BPAI 1990)*. The Office Action is devoid of providing any basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied prior art. In fact, there is no basis of fact or technical reasoning because the claimed characteristics do not necessarily flow from the teachings of the applied prior art. The rejection of claims 32-42 over Blonder or Agahdel is improper for at least this reason. Applicants respectfully request allowance of claims 32-42 in the next Action.

Pursuant to §2144.03 of the MPEP, Applicants hereby request identification of prior art which discloses features not found in either Blonder or Agahdel if such claims are not found to be allowable in the next action. In the event that such claims are not found to be allowable in the next Action, Applicants request the Examiner to cite a reference in support of their position or an affidavit in accordance with MPEP §2144.03.

In the event that a rejection of the claims is maintained with respect to the prior art, or a new rejection made, Applicants respectfully request identification in such asserted references of elements which allegedly correspond to limitations of the claims in accordance with 37 C.F.R. §1.104(c)(2). In particular, 37 C.F.R. §1.10(c)(2) provides that *the pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified*. Further, 37 C.F.R. §1.104(c)(2) states that the Examiner must cite the best references at their command. When a reference is complex or shows or

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describes inventions other than that claimed by Applicants, the particular teachings relied upon must be designated as nearly as practicable. The pertinence of each reference if not apparent must be clearly explained for each rejected claim specified. Applicants respectfully request clarification of the rejections with respect to specific references and specific references teachings therein pursuant to 37 C.F.R. §1.104(c)(2) if any claims are not found to be allowable in the next Action.

Referring to claim 54, a removable engagement probe is defined to have an outer surface comprising an apex in the form of at least one knife-edge line, and wherein the knife-edge line projects from a penetration stop plane. Claim 54 is not shown or suggested in the prior art of record.

Referring to Blonder, such teachings thereof fail to disclose or suggest a knife-edge line which projects from any structure which may be fairly considered as a penetration stop plane. The v-shaped members of Blonder do not project from a penetration stop plane or any other planar structure. Blonder is devoid of disclosing or suggesting a knife-edge line projecting from a penetration stop plane as defined in claim 54. Positively recited limitations of claim 54 are not shown or suggested in the prior art of record and claim 54 is allowable over Blonder for at least this reason.

Agahdel fails to disclose or suggest an apex in the form of a knife-edge line as positively recited in claim 54. Agahdel merely discloses particles which by the explicit teachings of Fig. 5 in no fair interpretation disclose or suggest a knife-edge line as defined in claim 54. Claim 54 recites limitations not shown or suggested in the prior art of record and claim 54 is allowable for at least this reason.

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The claims which depend from independent claim 54 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

The Examiner's reliance upon inherency is misplaced. Limitations defined in the dependent claims do not necessarily flow from the teachings of the prior art references. No technical reasoning or basis in fact has been provided in support of the Examiner's position. The claims which depend from claim 54 are allowable for at least this reason.

In the event that claims which depend from claim 54 are not found to be allowable in the next Action, Applicants request submission of prior art or an affidavit from the Examiner in accordance with MPEP §2144.03. In addition, if the dependent claims of claim 54 are not found to be allowable, Applicants respectfully request clarification of any rejection as required by the C.F.R.

The obviousness-type double patenting rejection is improper. The pending claims stand rejected for obviousness-type double patenting over claims 1-20 of the '428 patent. Applicants disagree with such rejection and request reconsideration.

Specifically, Applicants note that the present application comprises apparatus claims and that such claims are similar to apparatus claims of U.S. Patent No. 5,523,697 which were *restricted* from the method claims which ultimately issued in the '428 patent at the request of the Office.

The Examiner is referred to Paper No. 2 in the prosecution history of Application Serial No. 08/116,394 corresponding to the '428 patent. Such Paper No. 2 corresponds to an Office Action wherein the Patent Office restricted the claims in the case between

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claims drawn to a method of engaging electrically conductive test pads and claims drawn to a semiconductor device. In response to such Office Action, Applicants pursued the claims drawn to the methods in Application Serial No. 08/116,394, and such claims issued in the Farnsworth '428 patent. Applicants then canceled the claims drawn to the apparatus from Application Serial No. 08/116,394 and pursued such claims in an application which issued as the '697 patent.

It is inappropriate and inconsistent for the Examiner of the present case to reject the pending claims of the present application for obviousness-type double patenting over the claims of the '428 patent when the claims of the present case pursue similar subject matter restricted from the '428 patent by the Patent Office. The Examiner is referred to 35 U.S.C. §121 (titled "Divisional Applications") which states that a patent issuing on an application with respect to which a requirement for restriction has been made shall not be used as a reference against a divisional application. The Examiner is further referred to MPEP §804.01 which explains the prohibition of double-patenting rejections relative to divisional applications.

For the above-discussed reasons, the obviousness-type double patenting rejections of the pending claims are improper. Applicants therefore request withdrawal of such rejections in the next Action.

Applicants submit herewith two forms PTO-1449 which were submitted in Information Disclosure Statements filed May 31, 2001 and June 13, 2001. Copies of the forms PTO-1449 are submitted for the Examiner's convenience. Applicant respectfully requests initialization of the references cited on the forms and return of the initialed forms.

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to Applicants.

Applicant respectfully requests allowance of all pending claims.

The Examiner is requested to phone the undersigned if the Examiner believes such would facilitate prosecution of the present application. The undersigned is available for telephone consultation at any time during normal business hours (Pacific Time Zone).

Respectfully submitted,

Dated: 2/28/02

By: 

James D. Shaurette
Reg. No. 39,833

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TECHNOLOGY CENTER 2800

Application Serial No. 09/844,175
Filing Date April 27, 2001
Inventorship Warren M. Farnworth et al.
Assignee Micron Technology, Inc.
Group Art Unit 2858
Examiner R. Kober
Attorney's Docket No. MI22-1703
Title: Removable Electrical Interconnect Apparatuses and Removable Engagement
Probes

VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING
RESPONSE TO NOVEMBER 30, 2001 OFFICE ACTION

In the Claims

The claims have been amended as follows. Underlines indicate insertions and
strikeouts indicate deletions.

31. (Amended) A removable electrical interconnect apparatus for removably
engaging electrically conductive pads on a semiconductor substrate having integrated
circuitry fabricated therein, the apparatus comprising:

a substrate; and

an engagement probe projecting from the substrate to engage a single conductive
pad on a semiconductor substrate having integrated circuitry formed in the semiconductor
substrate, the engagement probe having an outer surface comprising an apex in the form
of at least one knife-edge line sized and positioned to extend elevationally above a surface
of the substrate to engage the single conductive pad.

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54. (Amended) A removable engagement probe having an outer surface comprising an apex in the form of at least one knife-edge line sized and positioned to engage a single conductive pad; and

wherein the knife-edge line projects from a penetration stop plane.

56. (Amended) The removable engagement probe of claim 54 wherein the knife-edge line projects from a penetration stop plane wherein the outer surface comprises a plurality of apexes having respective tips and bases, and the penetration stop plane is intermediate the bases and substantially parallel to a surface of a substrate.

END OF DOCUMENT

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TO 70#1309022*1703#1703 P. 18/20

Sheet 1 of 1

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. MT22-1703	SERIAL NO. 09/844,175		
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Warren M. Farnsworth et al.			
				FILING DATE April 27, 2001	GROUP 2856		
U.S. PATENT DOCUMENTS							
-Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
	AA	6,002,266	12-99	Briggs et al.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
	AL						Yes
	AM						No
	AN						
	AO						
	AP						
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
	AR						
	AS						
	AT						
EXAMINER				DATE CONSIDERED			
<small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small>							

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TO 70#1309022*1703#1703 P.19/20

Sheet 1 of 1

Form PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				ATTY. DOCKET NO. MJ22-1703	SERIAL NO. 09/844,175			
				APPLICANT Warren M. Farnworth et al.				
				FILING DATE April 27, 2001	GROUP 2838			
U.S. PATENT DOCUMENTS								
Examiner Initial		Document Number	Date	Name		Class	Subclass	Filing Date If Appropriate
	AA	6,093,643	7/35/00	Akram				
	AB							
	AC							
	AD							
	AE							
	AF							
	AG							
	AH							
	AI							
	AJ							
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FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
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	AN							
	AO							
	AP							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR							
	AS							
	AT							
EXAMINER				DATE CONSIDERED				
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

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TO 70#1309022#1703#1703 P. 20/20
Sheets 1 of 1

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. M122-1703	SERIAL NO. 09/834,175		
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Warren M. Farnworth et al.			
				FILING DATE April 27, 2001	GROUP 2858		
U.S. PATENT DOCUMENTS							
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	4,566,184	1/86	Higgins et al.			
	AB						
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	AN						
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EXAMINER				DATE CONSIDERED			
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>							